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The towers, 'onion-domes', and palaces of the Kremlin from over the Moskva river

K THE KREMLIN

'A RIDDLE wrapped up in a mystery inside an enigma . . .' This is how Sir Winston Churchill once described the workings of one of the most powerful governmental buildings in the world – the Moscow Kremlin. Above its greyish-red walls rise the tops of tall towers, roofs of magnificent palaces, and the golden 'onion-domes' of its churches. The five highest towers are crowned by ruby stars between 9 and 10 feet high. Special optical and electrical devices make these stars glow red day and night. It is these stars that symbolise the new status of the Kremlin. From being the historic citadel of Moscow it has become the seat of power and government of the largest state in the world, the USSR.

The word *kremlin* means, literally, a fortified place, and there has been a fortified structure on the site of the Moscow Kremlin since 1156, when timber walls were built there. In the 15th century brick walls were added, and grim-looking battlements appeared. These walls still stand today.

By the 16th century Moscow had become the capital of the Russian lands, and Russia's expansion in the 15th, 16th, and 17th centuries is reflected in the buildings of the Kremlin. In this period great cathedrals and palaces were built inside the walls. In the Granovitaya Palata (1487–1491) were held many of the gorgeous, almost oriental, ceremonies of the Russian court: receptions for foreign ambassadors; inaugurations of metropolitan archbishops; sittings of the Boyar Dumas (assemblies of palace officials). There were great celebrations like the one in which Ivan the Terrible celebrated his conquest of Kazan (1552), and Peter the Great his victory over the Swedes at Poltava (1709).

The hey-day of the Kremlin was in the 16th and 17th centuries – before Peter the Great moved his capital to St Petersburg. This new city became the centre of Russian life, while Moscow assumed a slightly provincial air. However, after the Bolshevik Revolution of 1917, Moscow again became the capital of Russia, and the Kremlin became the seat of government. Today it is the red flag of the Communist state, not the white, blue, and red of Imperial Russia, that flies over the Kremlin. But much of the Kremlin's magnificence remains. The museum has a remarkable collection of works of art and objects of both artistic and historical interest. Examples are the golden brocade vestments of Patriarch Nikon (mid-17th century), whose pearls alone weigh 50 pounds, and the carriage presented by Queen Elizabeth I of England to the Tsar Boris Godunov. Some of the interiors of the cathedrals have been restored to their original colour and brilliance. Perhaps the most spectacular single object in the Kremlin is the Tsar-Bell, which weighs 200 tons, is 20 feet 6 inches high, and has a diameter of about 22 feet. When cast in 1735, it was the biggest bell in the world – but the problem was to raise it to the top of its tower. While projects of all sorts were being discussed, there was a terrible fire in the Kremlin in May 1737. During this fire a fragment of the bell, weighing more than 11 tons, broke off. Why this happened will never definitely be known, but it is assumed that the bell was heated by burning logs that fell on it, and that water was sprayed on the bell, causing it to crack. A hundred years later the bell was raised out of the pit and installed on a granite base. It still stands today in the Kremlin.

But most important, the Kremlin is now the heart of the Russian body politic and the centre of a world-wide Communist movement. The Supreme Soviet of the USSR and the Communist Party of the Soviet Union both hold their congresses there. The most important executive offices of the USSR are in the Kremlin – like those of the President, and Chairman of the Council of Ministers. In fact, the word Kremlin is almost synonymous with that of the Government of the USSR, just as the White House is with that of the United States, and Whitehall or Westminster with the United Kingdom. To understand why the Kremlin is at the centre of Russian governmental life we must take a look at the Russian governmental system.

Previous page: Inside the Kremlin – the famous Uspensky (Assumption) Cathedral (completed 1479), and the Tsar-Bell beneath the Bell Tower of Ivan the Terrible (built 1505–1600).

An alpine meadow carpeted with purple and white crocuses; these are the first flowers to appear after the snow melts

MOUNTAIN FLOWERS

OF all the wild flowers that grow in a country, the least well-known are likely to be the mountain flowers. Everybody knows the primrose and bluebell, but if you have ever found mountain avens or moss campion, and recognised them, you are on the way to being a botanist. The reason is, of course, that mountainous regions are sparsely inhabited. For most people a long journey, and often a hard climb at the end of it, are needed in order to see mountain flowers in their natural surroundings. If you do find yourself among unfamiliar flowers in wild, hilly country, *do not uproot them and take them away*. If people do this the plants will soon be exterminated.

Alpines

We have seen (page 2209) how types of vegetation that grow high up in mountains in warmer regions are found lower down in colder ones. As a result people in Britain, for example, may be much more familiar with the mountain flowers of other regions than with those of their own. Many garden favourites, grown in the lowlands in cool climates, are the wild flowers of mountains nearer the equator. The Himalayas and other ranges in Asia are the richest source of plants of this kind. Gardeners with limited space at their disposal often make a rock garden in which they grow the plants found high up near the snow-line in mountains of warmer regions. Such plants are called alpines, because most of the earlier cultivated species came from the Alps.

Characteristics of mountain flowers

Most of the flowering plants growing really high, near the snow-line, are very small or have a creeping habit of growth, never rising more than a few inches above the ground. This helps them to avoid damage by the strong mountain winds and also to derive warmth from the earth, which absorbs heat from the sun.

Eritrichium nanum: *a plant with very short stems*

By contrast with their dwarf stature, most mountain plants have very long, well-developed roots. In this way they can seek water deep in the rock and are anchored firmly against the mountain gales.

Moss campion: note its very long roots

Most mountain plants are pollinated by insects. Since there are not many of these at great heights, the flowers are brightly coloured in order to attract the mountain-dwelling bees and butterflies.

Brightly coloured flowers from the Alps

Many mountain plants are covered with thick down, formed of hairs that are filled with air. This protects the plants against the intense cold and also prevents them losing too much water by transpiration. It is also thought to give them some protection against the ultra-violet radiation characteristic of high altitudes.

Edelweiss: the whole plant is covered with soft down, which protects it from cold and from drying up

These two pages show some flowers of the European Alps, arranged according to the sort of environment they live in.

Note: the flowers are not all drawn to the same scale.

Pheasant's eye narcissus (*Narcissus poeticus*). This common wild flower of alpine meadows is cultivated in the lowlands of more northern countries.

FLOWERS OF THE WOODS

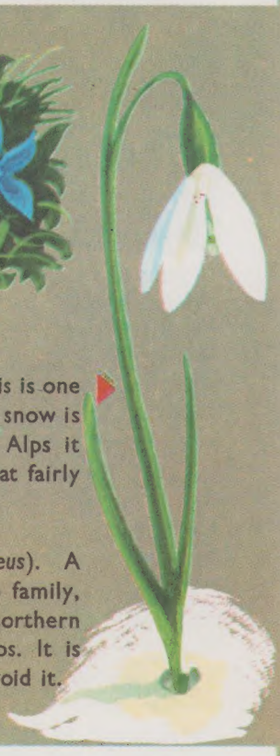
Alpen rose (*Rhododendron ferrugineum*). A small bush which grows in pine woods at heights of up to 10,000 feet. It is not a rose, but a rhododendron.

Bilberry (*Vaccinium myrtillus*). A very common plant on hills and moors in Britain, especially Scotland, and on mountains in southern Europe. The small blackish fruits are edible.

Cyclamen or sowbread (*Cyclamen europaeum*). Rare as a wild flower in Britain, but common in the Alps, and one of the most beautiful mountain flowers. The tubers are poisonous.

FLOWERS OF THE MEADOWS

Spring gentian (*Gentiana verna*). A favourite of gardeners who grow 'alpines' in rock gardens. It is found wild on limestone in the Pennines and in western Ireland.



Snowdrop (*Galanthus nivalis*). This is one of the few plants that flower when snow is still lying on the ground. In the Alps it also flowers in winter and grows at fairly low altitudes.

Globe flower (*Trollius europaeus*). A beautiful flower of the buttercup family, found rarely in damp places in northern Britain and commonly in the Alps. It is poisonous, and sheep and cattle avoid it.

Viola calcarata. This alpine flower is similar to the mountain pansy (*Viola lutea*) of northern Britain. Both species may be either mauve or yellow in colour.

Meadow saffron (*Colchicum autumnale*). A poisonous plant that grows wild in the lowlands in Britain.

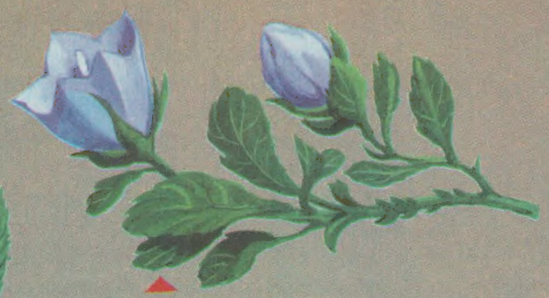
FLOWERS OF THE PASTURES

Cirsium spinosissimum. This is a very spiny thistle, which is found in the Alps. Most thistles have reddish-purple flowers but in this species the flowers are a pale green. Grazing animals can only eat the plant when it is young.

Arnica montana. A plant belonging to the daisy family, which is bright orange in colour. It is often cultivated in gardens, and is found at heights of up to 8,500 feet in the Alps. Its leaves are sometimes used as a substitute for tobacco.

FLOWERS OF THE ROCKS

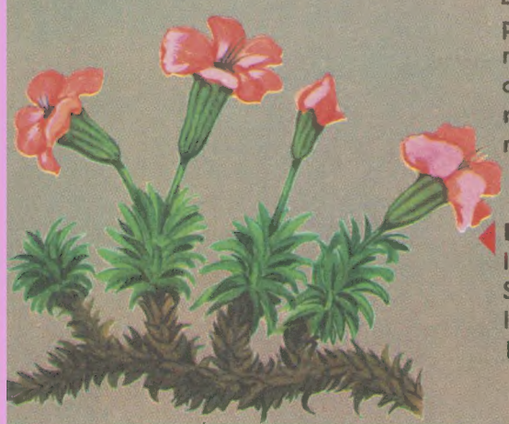
Achillea nana. This is a dwarf alpine relative of yarrow and sneezewort. It grows in rocky places, and its stem and leaves are covered with down. The plant is used for flavouring a kind of liqueur.



Campanula raineri. A very beautiful flower, and a favourite of cultivators of 'alpines'. The plant grows wild on limestone cliffs in northern Italy, but is not very common.

Edelweiss (*Leontopedium alpinum*). This is the most famous of all the alpine plants, and has been found growing at heights of 11,000 feet and above. Closely allied species are found at 16,000 feet in the Himalayas and in the cold deserts of Siberia. The whole plant – stem, leaves, and flowers – is covered with a layer of down, which gives it protection against the very severe climate in which it lives.

Eritrichium nanum. This tiny, very beautiful plant is closely allied to *Myosotis* (forget-me-not) and is a great favourite of 'rock-gardeners'. It is found at sea level in the Arctic regions as well as near the snow-line in the mountains of Europe.



Moss campion (*Silene acaulis*). A very pretty little flower common on some mountains in Scotland; in the north it is found at sea level. In the Alps it grows in rocky places up to 10,000 feet.

Centaurea rhaponticum. This is an alpine relative of the knapweed, but the flowers are much larger. The plant grows about 3 feet high and is found from 4,500 to about 8,000 feet. It is sometimes grown in gardens in Britain.

Trifolium alpinum. This is a kind of clover, which grows in the alpine meadows. Like other kinds of clover, it makes a very good pasture, especially for dairy cattle. The roots have a curious smell resembling that of liquorice.

FLOWERS OF THE GLACIERS

Ranunculus glacialis. This white buttercup grows higher than any other European alpine plants. It grows by the glaciers and near the summer snow-line, at about 13,000 feet.

Glacier pink (*Dianthus glacialis*). A beautiful plant of the high Alps, with rather narrow and fleshy leaves. It is found near glaciers in rocky places, and is not easy to grow in cultivation.

Dwarf primula (*Primula minima*). This is a tiny plant with very short stems growing only 2 inches high. It appears immediately after the snow has melted.

THE BATTLE OF CANNAE

LET us imagine that the 'special correspondent' of a newspaper of 216 B C is giving an account of the great battle fought on the plain near Cannae, in Apulia.

GREAT ROMAN DEFEAT: 50,000 KILLED
WILL HANNIBAL MARCH ON ROME?

Cannae, 2nd August

The attempt of the new consuls, L. Aemilius Paullus and C. Terentius Varro, to remove the Carthaginian menace has ended disastrously. Today at Cannae Hannibal, the undefeated Carthaginian leader, won yet another victory over the forces of Rome. Though alone and isolated with his army, he seems to control all Italy. And Rome is facing destruction. 44,000 of her army have been killed, as well as 80 senators and the consul, Paullus. Will Hannibal take this opportunity to march on Rome? The fate not only of Italy but of all the Mediterranean world seems now to be in his hands.

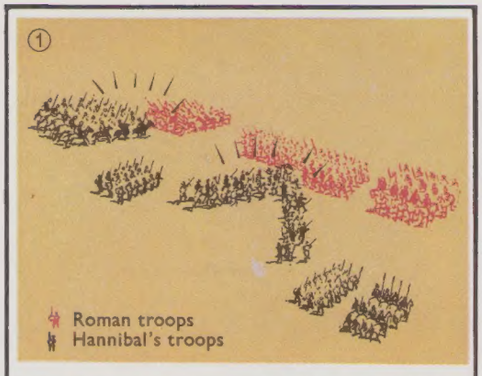
Hannibal was fortunate to be faced by a disunited opposition. The consuls had not worked well together, and therefore decided to hold the supreme command on alternate days. Varro was in command today, and may have to take more than his fair share of blame for the Roman defeat.

The Roman army had been increased to some 48,000 infantry. Hannibal had only 35,000 infantry, half of whom were not Africans but Spanish and Gallic allies. But he had 10,000 cavalry – at least 4,000 more than the Romans.

Varro massed his infantry in deeper files than usual, hoping their superior numbers would enable them to break through Hannibal's infantry. He drew up his allied cavalry on his left wing, and his few Roman citizen cavalry on his right.

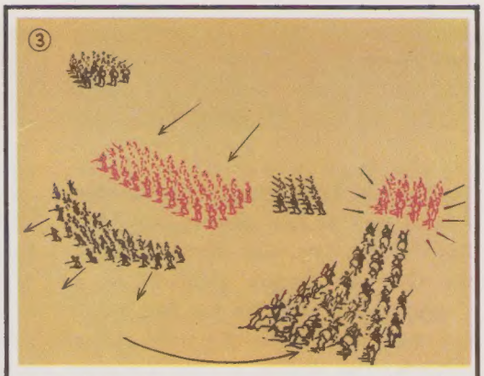
Hannibal placed both his Spanish and his Gallic cavalry on his left wing (facing the weak Roman right wing), and only the African cavalry on his right. In the centre he drew up his Gallic and Spanish infantry in a wedge-shaped formation. He kept his best troops, his veterans from Africa, in reserve on either side of the centre, but held well back. One proof of their prowess was that, unlike the half-naked Gauls, they were all wearing Roman armour, spoils of their earlier victories. Hannibal chose the battleground with great care. When the Romans advanced to attack him, they had the morning sun in their eyes and a strong wind blowing dust in their faces.

Now let us follow the course of the battle in the diagrams.

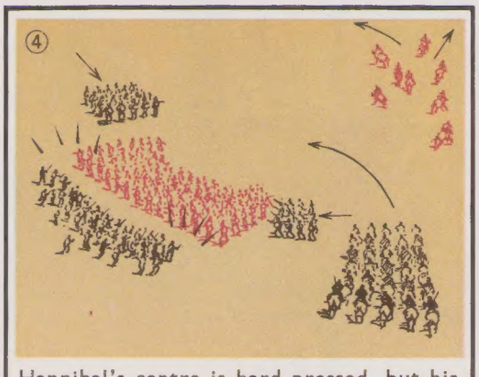


The Roman infantry attack, driving back the Gallic and Spanish infantry, while Hannibal's Gallic and Spanish cavalry on the left attack the Roman citizen cavalry.

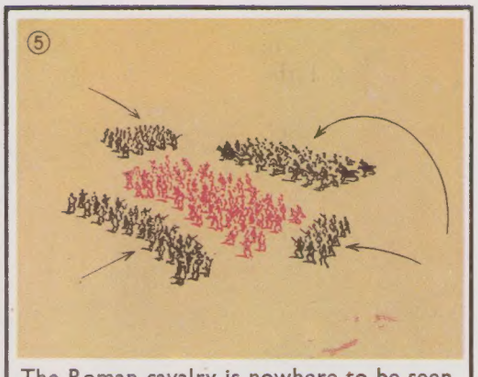
Hannibal's centre withdraws farther; on the left his cavalry routs the Romans. A detachment moves to reinforce his African cavalry who are engaged on the right.



Hannibal's African infantry is now on the flanks of the advancing Romans. Meanwhile his reinforced African cavalry on the right wing attacks the Roman allies' cavalry.



Hannibal's centre is hard pressed, but his fresh African infantry attacks the advancing Romans on the flanks; his victorious cavalry wheels to take them in the rear.



The Roman cavalry is nowhere to be seen. The Roman infantry is completely surrounded: it fights bravely for some time, but its defeat is now inevitable.

What now?

Roman casualties have been very serious indeed. Varro is believed to have escaped; but Aemilius Paullus has been killed, together with 80 senators. Of the whole Roman army, barely 10,000 can have escaped. *Total* Carthaginian losses are said to be a mere 6,700.

Everyone is asking what will happen next. Will Hannibal march at once to Rome? This is quite possible, though it is doubtful whether he would be able to capture Rome with its strong fortifications. It seems more likely that he will try to isolate Rome by winning over her allies: with what success remains to be seen.

The second stage of the battle of Cannae (see diagrams above). From the foreground to the background: on the left, African infantry, wearing captured Roman armour; the Gallic and Spanish centre being forced back by the Romans; the other contingent of African infantry; and, in the distance, the Gallic and Spanish cavalry

POSTSCRIPT

Hannibal did not march at once on Rome. Many Greek cities in southern Italy joined him, although central Italy stood firm. But the Romans never again dared to fight a pitched battle with him in Italy. The war lasted another 14 years. Eventually Hannibal was recalled to defend Carthage against the Roman general Scipio Africanus (see page 1808).

CITIES OF TURKEY

IN the last 1,600 years the area which is now Turkey has been part of four states: the Roman Empire (38 B C – A D 395); the Byzantine (Eastern Roman) Empire (395–1453); the Ottoman Empire (1453–1922); and the Republic of Turkey. Naturally this has had a profound effect on the appearance of many of the cities of Turkey. In many of their skylines, the domes of the Christian Byzantines mingle with the minarets of the Muslim Ottoman Turks. And modern flats, offices, and monuments are rising in cities which, under the Roman Empire, were the centres of primitive Christianity.

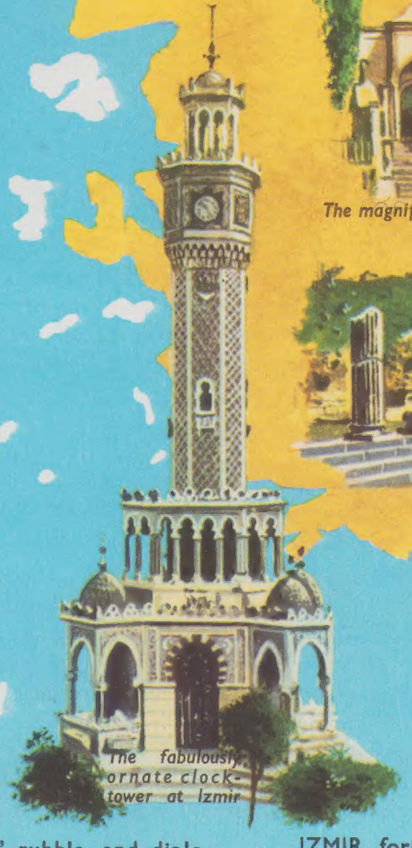
Ancient and modern cities of Turkey

The Dolmabahce Mosque (1853) on the European shore of the Bosporus; it now houses a remarkable naval museum

A view of Asia from Europe – the continents

The magnificent sultan's mosque at Bursa

Pergamum; ruins of the ancient Greek city



The fabulously ornate clock-tower at Izmir

ANKARA, formerly Angora, is in central Anatolia, about 295 miles from Istanbul. Like most Turkish cities, it has had a long and chequered history; it was captured from the Persians by Alexander, and occupied in turn by Galatians, Romans, Persians, Arabs, Byzantines, Seljuk Turks, Mongols, and finally Ottoman Turks. St Peter and St Paul both preached there, and the latter's *Epistle to the Galatians* was addressed to the people of Ankara.

The surroundings of Ankara are of almost lunar bareness. Indeed Ankara seems a remote, unlikely place to be chosen as the capital of Turkey. But to Kemal Atatürk, 'Father of the Turks' (see page 1165), it had qualities that Istanbul, with its foreign influences and deep-rooted traditions, lacked. Moreover, it was at Ankara that Atatürk raised the nationalist army which enabled him to win independence from the armies of occupation in 1922, depose the Sultan, and become President of the Republic of Turkey. The building of a city in this arid, unwelcoming steppe seemed an impossible task. For years civil servants lived among builders' rubble, and diplomats had embassies in railway carriages. But Atatürk succeeded, and from a town of 40,000 people has emerged a modern city of 646,150, with wide streets, modern buildings, and green gardens – a testimonial to the energy and drive of the Turks. Here there is little of the contrast between splendour and squalor which exists in Istanbul. Indeed, the creation of modern Ankara is a remarkable achievement on the part of Atatürk, and is a monument to his dream of what a united Turkey could achieve. Ankara divides naturally into the old and the new town. The former has a citadel under whose walls Tamburlaine (see page 1188), the Mongol conqueror, defeated Sultan Bayezid I in 1402; the Hittite Museum; and the Temple of Rome and Augustus. Among the sights of modern Ankara are the Youth Park and the Atatürk Mausoleum. Two famous local animals are Angora cats, with their long coats, and Angora goats which provide mohair. There is little industry.

PERGAMUM AND EPHESUS. In the 3rd century B C the ancient city of Pergamum was fortified by Lysimachus, one of Alexander's generals. It later became allied to Rome, and by the 1st century B C it was extremely rich. It was one of the intellectual centres of the

IZMIR, formerly Smyrna, is the third largest city of Turkey (population 370,920). It is set on the Aegean coast in a great bay which makes it a natural harbour. Since the 7th century B C it has been a very prosperous port. At the end of the First World War Izmir was occupied by the Greeks; but in 1922 they were driven out by Atatürk. Four days later a fire destroyed three-fifths of the city. It was rebuilt, and today industrial suburbs surround the bay. Among Izmir's exports are tobacco, grapes (sultanas), dried figs (Smyrna figs), cotton, olives, and olive oil. The International Trade Fair draws thousands of visitors each year.

meet at the city of Istanbul on the Bosporus

ISTANBUL, on the Bosporus, bridges two continents – Asia on the east, and Europe on the west. This key position has for centuries made Byzantium, Constantinople, or Istanbul, as it has successively been called, a point of strife between nations. After Rome was sacked by the Goths in 410, Constantinople became the guardian of western thought and learning, and of Christianity. Until the 15th century it was one of the centres of the civilised world. Its position at the gateway to the East brought the city great riches (see page 2362). It had to withstand siege after siege (see page 562), and the formidable land walls of the Byzantines, rebuilt by the Turks, still stand. Constantinople fell twice: once to the Crusaders in 1204 (when it was sacked and many of its treasures destroyed), and again to the Ottoman Turks in 1453.

Today Istanbul is no longer the capital of Turkey, and its glory appears rather dimmed; many of the picturesque old houses are dilapidated, and it has a decaying, old-fashioned air. However, it is still a flourishing port; its shipping is increasing; and the Bosporus remains strategically important as well as being one of the most remarkable and beautiful waterways in the world. It is also a centre of light industry. The population is 1,500,000.

The oldest part of the city, Stamboul, stands where Constantine (claiming to be led by divine inspiration) laid out his city of Constantinople, embracing seven hills in imitation of Rome. Stamboul, with its narrow, cobbled streets, is linked to the residential quarter of Beyoglu by the Galata bridge and the new Atatürk bridge. These span the Golden Horn, an arm of the sea which cuts into the city and forms 'the greatest natural harbour in the world'.

Ankara – a monument to the dream of Kemal Atatürk

The Mausoleum of Atatürk at Ankara, built in 1953. Thousands come to pay homage at the tomb of the founder of the Republic

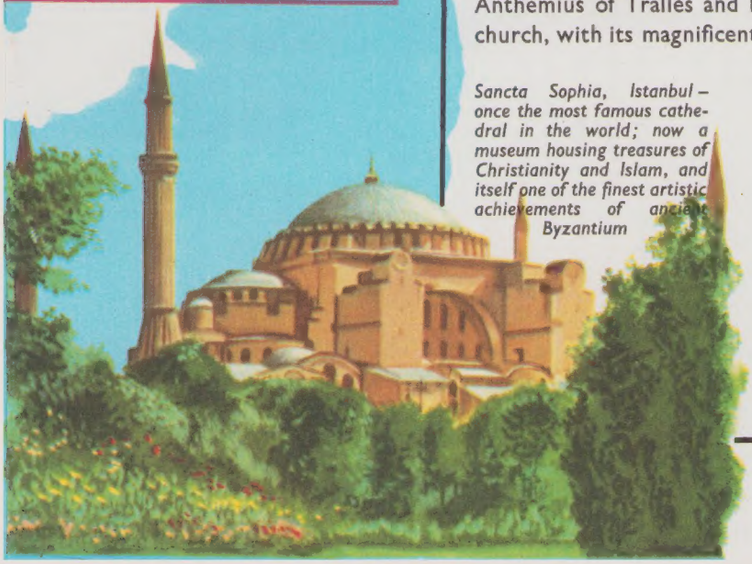
Middle East, with a very fine library; parchment (*pergamenon*) was invented here. The modern Turkish town of Bergama lies near the ancient city.

Ephesus has been a sacred city from ancient times. Its Temple of Diana was one of the Seven Wonders of the Ancient World. St Paul lived here for three years, and St John was buried here. The ruins include a well-preserved theatre and library.

HISTORIC MONUMENTS OF ISTANBUL

Istanbul is one of the most fascinating cities in the world, and takes weeks to explore fully. Its monuments date from all periods; parts of the land walls, some Christian churches which survived the Islamic Conquest, and the column of Constantine, are Byzantine. From the Ottoman period come the many mosques which give Istanbul its uniquely irregular skyline. There are literally hundreds of them, the most striking being the great imperial mosques which crown the hills of the city. Occupying a commanding position over the Bosporus is the Seraglio, the great palace of the sultans, where their priceless treasures can be seen today.

Most impressive of all is Sancta Sophia, the great church built for Justinian in 537 by the architects Anthemius of Tralles and Isidorus of Miletus. This church, with its magnificent mosaics, its huge dome 180 feet high, and glorious array of smaller domes and minarets, is the glory of Istanbul. When Sultan Mehmet II conquered the city in 1453 he turned it into a mosque. In 1935 Atatürk made it a museum, and it now contains both Muslim and Christian treasures.



Sancta Sophia, Istanbul – once the most famous cathedral in the world; now a museum housing treasures of Christianity and Islam, and itself one of the finest artistic achievements of ancient Byzantium

ADANA is the fourth city of Turkey, and one of the richest. Although it was founded in the 9th century B C, it has little left today of historical interest. Since the proclamation of the Republic of Turkey its population has increased tremendously, leaping from 70,000 in 1920 to 230,020 today. Its prosperity comes from the rich alluvial plain surrounding the city which produces sugar cane, wheat, fruit, and tobacco. Its industries are also expanding rapidly.

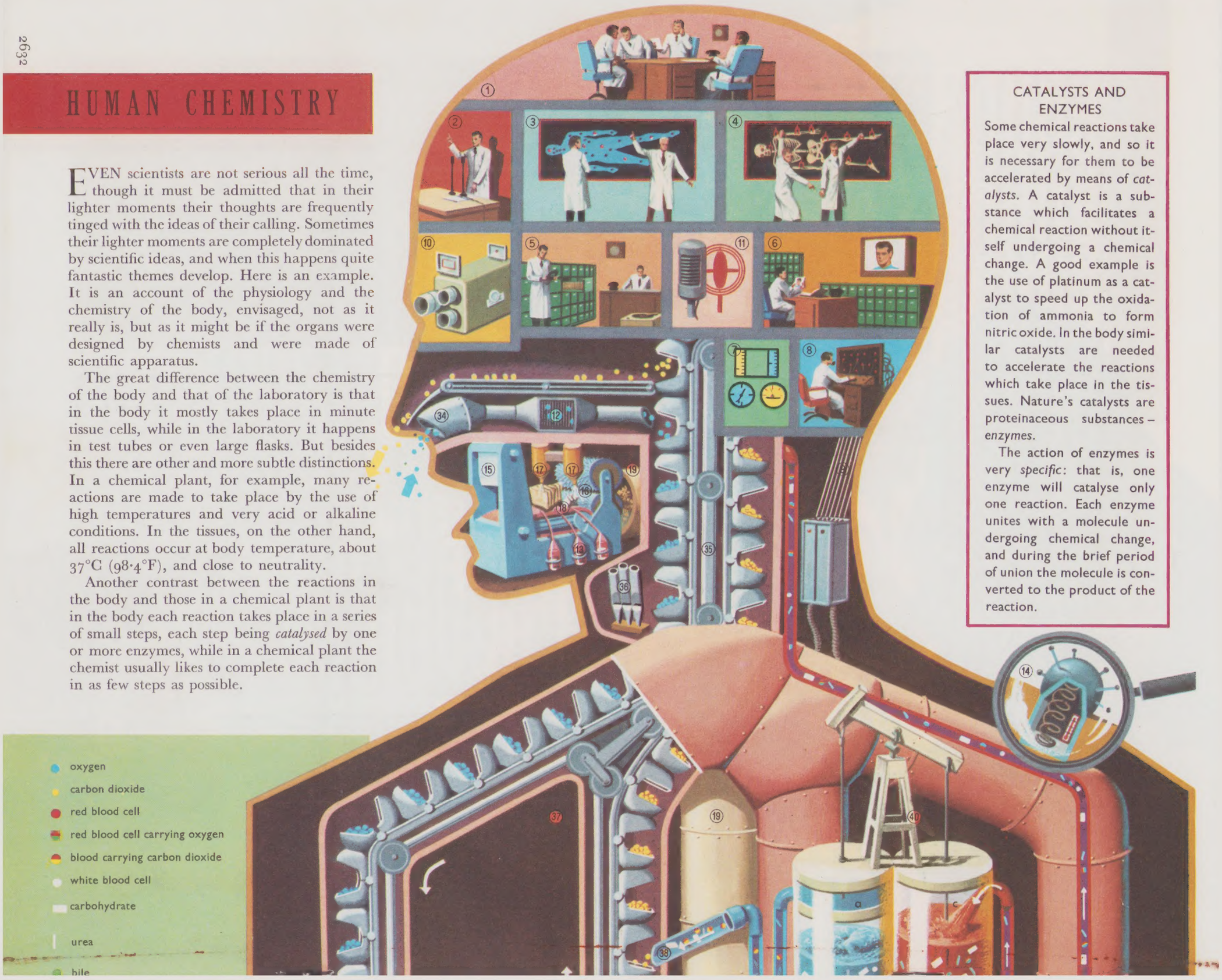
BURSA, the first capital of the Ottoman empire, is about 18 miles from the Sea of Marmara. It lies on the foothills of the Uludag (Mount Olympus), and is a delightful town of 153,600 inhabitants. Bursa contains the tombs of the first six conquering sultans and many mosques, and so, to Muslims, it is a sacred city. The Green Mosque, built in 1422, is the most famous. It is decorated with the magnificent tiles which are one of the great artistic achievements of the early Ottoman empire. They are found in mosques both here and in Istanbul. Bursa is famous for its fruit and vegetables, and is a centre of the raw silk industry. It has natural hot springs with baths dating from the 14th century, which are still in use.

HUMAN CHEMISTRY

EVEN scientists are not serious all the time, though it must be admitted that in their lighter moments their thoughts are frequently tinged with the ideas of their calling. Sometimes their lighter moments are completely dominated by scientific ideas, and when this happens quite fantastic themes develop. Here is an example. It is an account of the physiology and the chemistry of the body, envisaged, not as it really is, but as it might be if the organs were designed by chemists and were made of scientific apparatus.

The great difference between the chemistry of the body and that of the laboratory is that in the body it mostly takes place in minute tissue cells, while in the laboratory it happens in test tubes or even large flasks. But besides this there are other and more subtle distinctions. In a chemical plant, for example, many reactions are made to take place by the use of high temperatures and very acid or alkaline conditions. In the tissues, on the other hand, all reactions occur at body temperature, about 37°C (98·4°F), and close to neutrality.

Another contrast between the reactions in the body and those in a chemical plant is that in the body each reaction takes place in a series of small steps, each step being *catalysed* by one or more enzymes, while in a chemical plant the chemist usually likes to complete each reaction in as few steps as possible.



CATALYSTS AND ENZYMES

Some chemical reactions take place very slowly, and so it is necessary for them to be accelerated by means of *catalysts*. A catalyst is a substance which facilitates a chemical reaction without itself undergoing a chemical change. A good example is the use of platinum as a catalyst to speed up the oxidation of ammonia to form nitric oxide. In the body similar catalysts are needed to accelerate the reactions which take place in the tissues. Nature's catalysts are proteinaceous substances – *enzymes*.

The action of enzymes is very *specific*: that is, one enzyme will catalyse only one reaction. Each enzyme unites with a molecule undergoing chemical change, and during the brief period of union the molecule is converted to the product of the reaction.

bilirubin

The **cerebral cortex** corresponds to the chemical engineers' office. It is to this office that reports are sent, and in the light of these reports decisions are made which control the voluntary movements of the human machine.

The **frontal lobes,** like the personnel manager's office, are involved in emotional responses.

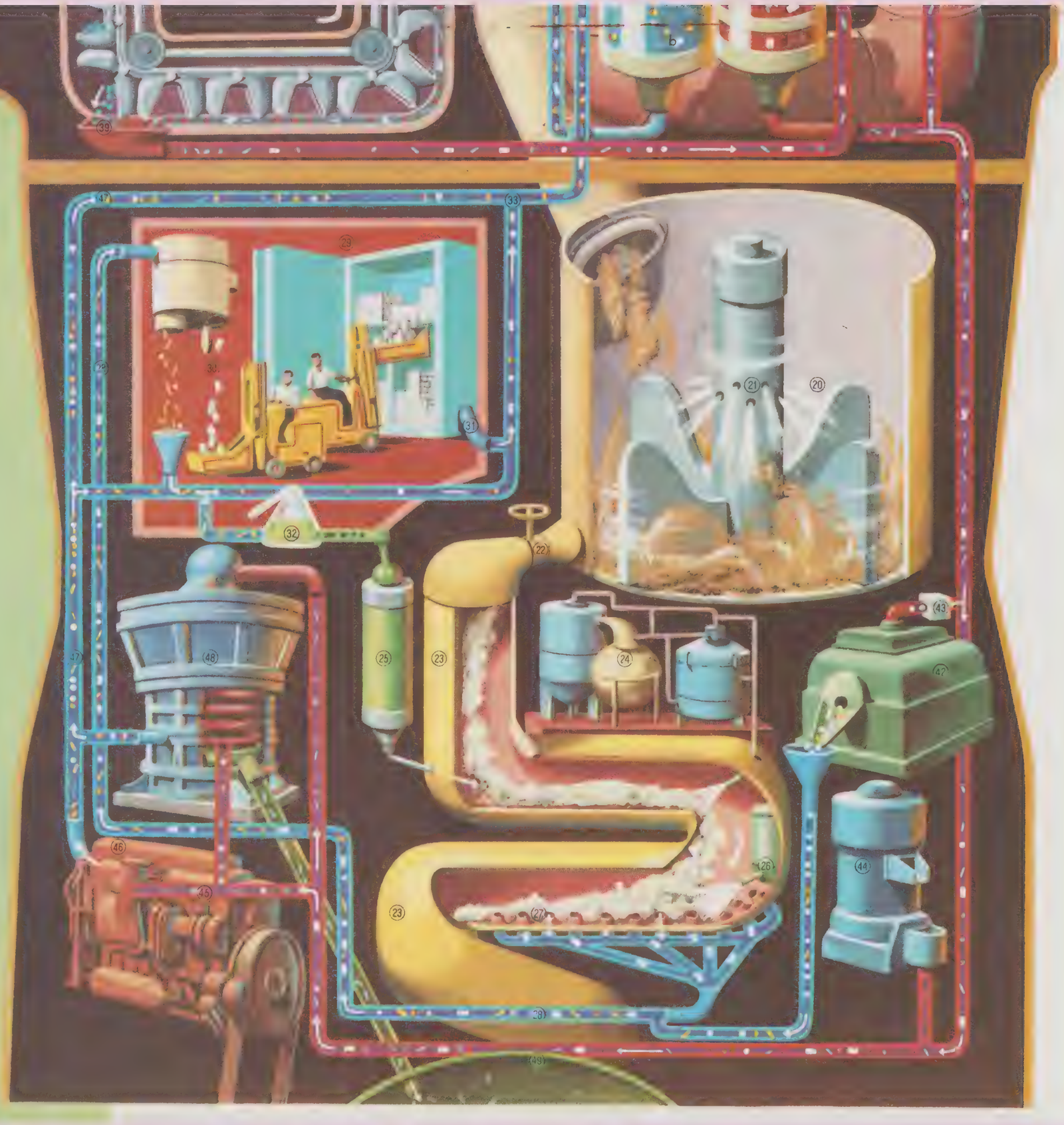
To the **sensory cortex** come reports describing the body's environment.

The **motor cortex** is responsible for despatching the messages which control the body's movements.

The **auditory centre** of the brain is like a file. In it are stored the meanings of a great number of different sounds, particularly those of speech.

The **visual centre** in the occipital cortex is the office which receives and stores the visual images.

and In the **medulla oblongata** at the posterior part of the brain are automatic controls which regulate the rate and depth of respiration, the rate of the heart beat, and blood pressure. These controls are known as the 'vital centres', for their proper functioning is essential for life.



9 The upper part of the **spinal cord** carries messages to the various parts of the plant.

10 The **eye** is like a television camera which has automatic focusing. It transmits in colour, by closed circuit, to the visual cortex in the occipital lobes at the posterior part of the brain.

11 The **ear** contains a microphone which receives sound waves with frequencies between 16 cycles and 20,000 cycles per second. These are transmitted to the auditory cortex. The ear also contains a gyroscope which reports the movements and position of the head. In response to these reports the muscles of the body maintain its balance.

12 The air needed for the operation of the body is filtered as it passes through the **nose.** In this way particles of dirt are excluded from the gas exchanger.

13 Food, which is the chemical plant's raw material, is tested for quality by the **taste buds** in the **mouth.** Unsuitable materials are rejected.

14 The **sensory organs** in the skin are like a vast number of minute observatories, which report to the brain the conditions existing outside the body. They tell of the temperature of the air and the nature of anything which touches the skin.

15 The **incisor teeth** are part of a grinding machine which breaks up the food. The pieces pass farther along the grinder to . . .

16 the **molar teeth,** where they are ground into fine fragments.

17 The **salivary glands** provide a liquid which mixes with the food in the grinder and assists in its breakdown.

18 The **tongue** acts as a screen, controlling the passage of food through the grinder.

19 The **oesophagus** collects the food from the grinder and conveys it to the stomach.

20 The **stomach** is like a large mixing vat in which the food is mixed with digestive juices. The purpose of these juices is to start the digestion of the food into substances which can be utilised by the body.

21 The glands of the **stomach wall** secrete hydrochloric acid and pepsin into the mix.

22 When the digestion is sufficiently advanced the **pyloric valve** opens.

23 The fluid mix, the *chyle*, enters the **small intestine,** where the digestive processes continue.

24 The **pancreas** is a small laboratory in which pancreatic juice is formed. This contains the enzyme trypsin, which is responsible for breaking down proteins in food.

25 The **gall bladder** receives bile from the liver and pumps it into the intestine.

26 The **glands** in the wall of the small intestine prepare further digestive enzymes.

27 The **intestinal villi** which line the inner surface of the gut absorb the products of digestion.

28 The **portal vein** is the pipe which carries the products of digestion from the intestine to the liver.

29 The **liver** is a store. Here a variety of materials are kept until they are needed.

30 In the liver the sugar is separated from the blood and converted into glycogen.

31 As sugar is needed in the blood it is re-formed from the glycogen in the liver.

32 The liver extracts bilirubin from the blood and pours it into the **bile duct,** which leads to the gall bladder.

33 The **hepatic vein** carries the blood and nutriments to the general circulation.

34 The **nose** is the air intake which admits air to the plant.

35 The **trachea** is like a conveyer which carries the air to the lungs.

36 The **larynx** is fitted in this conveyer, and uses the passing air to make sounds.

37 The **lungs** are gas exchangers to which the air is carried.

38 The **pulmonary artery** carries blood laden with carbon dioxide from the heart pump to the lungs, where the carbon dioxide escapes from the blood into the air.

39 In the lungs some of the air's oxygen is absorbed and transferred to blood flowing through the lung tissue. The oxygen combines with haemoglobin to form oxyhaemoglobin.

40 The **heart** is the pump which forces the blood through the pipes which supply the whole of the chemical plant. The pump consists of four compartments: (*a*) the right auricle, which receives blood from all parts of the body; (*b*) the right ventricle, from which blood is pumped to the lungs; (*c*) the left auricle, which receives blood from the lungs; and (*d*) the left ventricle, which pumps blood around the body.

41 The **aorta** is the pipe which carries the blood away from the heart. Its many branches convey the blood to the organs in all parts of the body except the lungs.

42 and 43 The **lymph glands** and the **spleen** are responsible for some of the white cells which enter the blood, and which play a part in combating bacterial infections.

44 The **bone marrow,** which occupies the inside of several of the long bones in the body, is responsible for the manufacture of the red cells which carry oxygen along the arteries to the organs and tissues.

45 The **arteries** carry nutriments and oxygen. These substances diffuse out of the blood and into the cells of the tissues.

46 The **muscles** are engines, in which nutriments are oxidised for mechanical energy.

47 In the process of oxidation in the muscles waste products are formed, particularly carbon dioxide. This is carried away in the blood in the **veins**, first to the right side of the heart, and then to the lungs, from where it is passed out to the air.

48 and 49 In the **kidneys** the blood passes through a filter which removes the unwanted waste substance, urea, and excess water. This waste then passes to the **urinary bladder.**

JANE AUSTEN

Jane Austen (1775–1817) – *she mirrored upper-middle-class society*

WOMEN are not great creative artists. The finest composers, painters, sculptors, dramatists, and even poets have all been men. But with novelists it has been different. For there have been women novelists who have equalled and even excelled their male counterparts. Among such women (perhaps the greatest of them all) was Jane Austen.

The novel underwent a radical change in the late 18th and early 19th centuries. This period saw the decline of the so-called 'gothic' novel, with its high-born heroine and scenes of supernatural terror, and a gradual movement towards realism. Realism is a wide enough field, but with many Georgian and Victorian novelists realism consisted of writing almost exclusively about the everyday lives of members of upper-middle-class society. These were social or 'domestic' novels; and the world of domesticity is at least as much a woman's world as it is a man's. This was the world which Jane Austen made her own. She characterised the upper middle class with such insight and skill that her novels are as popular today as they were when she wrote them.

A leisurely life

Jane Austen was born in 1775 at Steventon in Hampshire. Her family was not rich, but they were well-bred and had no difficulty in finding their places in society. Two of her brothers became admirals and a third entered the Church, following the footsteps of his father, who was rector of Steventon. It is hardly surprising that clergymen, like Henry Tilney in *Northanger Abbey* and Edmund Bertram in *Mansfield Park*, figure so prominently in Jane Austen's stories.

It was at Steventon, when she was 17 years old, that Jane Austen began work on the first draft of a novel, *Elinor and Marianne*, written as a sequence of letters (a popular style at the time). This was later revised, and published in 1811 under the title *Sense and Sensibility*. She began two other novels while still in her early 20s, but neither of these was published until many years later. In fact, *Pride and Prejudice*, which is perhaps the best loved and best known of all her books, was actually refused by a publisher in 1797, when it was offered in its original form under the title *First Impressions*. Her next book, *Northanger Abbey*, satirising the 'gothic' novel, was begun in 1798 and bought by a publisher for the sum of £10. The novel did not appear in print, however, until 1818.

From Steventon Jane Austen moved to Bath in 1801, where she lived for four years. This was not a great creative period in her life – she wrote only one (unfinished) novel, *The Watsons* – but it was here that she imbibed much of the atmosphere of upper-middle-class society which permeated her writing.

In 1805 the Austens moved to Southampton, and in 1809 they settled at Chawton in Hampshire, where Jane Austen turned once more to serious writing. By the time she died in 1817 she had completed six novels. At least two of her earlier books had been reshaped, and three new novels had been written. The first of these, *Mansfield Park*, was published in 1814. Next came *Emma*, which was published in 1816. *Persuasion*, the last of Jane Austen's novels, was completed just before she died and published in 1818.

Her superb technique

Today Jane Austen is more widely read than any other 19th-century novelist with the solitary exception of Charles Dickens. Why is it that her books, written over a century ago, should be so popular? First, they provide an accurate and informative account of 'genteel' life in her own time. But more than this, they are great works of literature. For Jane Austen was a superb craftsman. Her plots are skilfully constructed and always interesting. Unlike Trollope (see page 2462), she knew how to tell a story pointedly and with an economy of words. Her style is both fluent and lively, while her flair for dialogue gave her scope in dramatic characterisation which is not spoiled by the long, explanatory narrative, common to so many 19th-century novelists.

Among her characters, the women are especially well presented. Her insight into the female mind enabled her to present her heroines as ordinary human beings, with ordinary faults and failings as well as traditionally good qualities. A good example of this is Emma Woodhouse, who, though affectionate, clever, and charming, is inclined to consider herself wiser than other people. Jane Austen laughs gently at her foolishness, but is never unkind, and the modern reader feels far more sympathy with this 'real' heroine than with the conventional 'perfect' heroine of many 18th- and 19th-century novels.

How then do we assess Jane Austen? Some critics consider that her world is too restricted and that she sets her sights too narrowly. She rarely introduces the lower classes into her society, except as servants of the rich. Although she lived during the momentous era of Napoleon, when all Europe was locked in conflict, she firmly ignores the horrors of war, and writes, instead, of summer picnics and the price of muslin.

Yet such criticisms are unfair. Jane Austen knew, better than her critics, where her own talents lay, and she employed them to the full in a world to which she felt drawn. No one can ask more of an artist than this.

THE TYPICAL REPTILE

A REPTILE is a cold-blooded, vertebrate animal that breathes air throughout its life. This definition obviously excludes fishes (which do not breathe air) and birds and mammals, which are warm-blooded. It also excludes the amphibians – frogs, toads, and newts – because their early lives are spent in water, as tadpoles, breathing with gills like a fish.

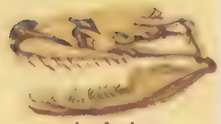
FORM OF THE BODY

Most reptiles have elongated bodies, like those of lizards, crocodiles, and snakes, but the bodies of tortoises and turtles are short and broad.

THE SKELETON

The limbs, when present, are usually short, and the vertebrae numerous. Crocodiles have about 60 vertebrae, and some snakes 400. There are usually openings in the temporal region of the skull, and the lower jaw is made up of several bones.

Teeth. Tortoises and turtles have sharp, horny edges to their jaws, but no teeth. The teeth of other reptiles are usually sharp and pointed. They are never differentiated into incisors, canines, and molars like mammals' teeth (see page 2102), but some snakes have hollow fangs, used for injecting poison, as well as ordinary teeth. Reptiles' teeth are used for grasping and tearing, and they swallow food whole or in lumps; it is then dissolved by their powerful digestive juices.


teeth of a boa (non-poisonous)

teeth of a viper (poisonous)

beak of a turtle

The Nile crocodile, one of the larger kinds of crocodile

How reptiles' legs are joined to their bodies

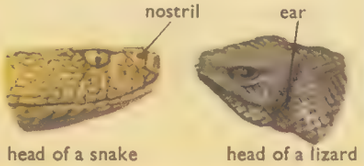
Locomotion. The limbs of most reptiles project on each side of the body, so that the animal does not stand up on its legs but crawls, with its belly touching the ground; some lizards, however, run actively on their hind legs. Snakes have no limbs and progress by crawling, and there are also certain lizards, like the slow-worm, which are limbless.

A lizard's legs push it along but do not support its body

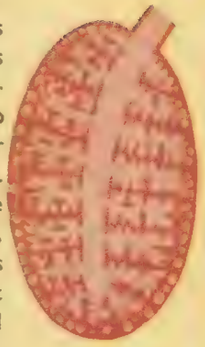
Five digits with claws. Five is the primitive number of digits on the limbs of vertebrate animals, and most reptiles have this number, though crocodiles have only four on their hind feet. The digits are nearly always armed with claws. The limbs of the marine turtles take the form of paddles.

Horny scales. Reptiles differ from amphibians in having skin which is usually covered with horny scales or plates. They may also have bony shields embedded in their skin, as in the crocodiles, and, in a more exaggerated form, in tortoises and turtles. Another distinction is that the skin of reptiles, at any rate over most of their bodies, is not glandular, so that it is not moist or slippery like that of a frog. A snake's skin is dry and clean, not slimy as many people believe.

Nose and ears. The nostrils of reptiles are situated on each side of their muzzles, and their sense of smell is well developed. Snakes can also be said to 'smell with their tongues', as they dart them in and out, collecting scent molecules from the air which are conveyed to a special sense organ in the mouth. The external ear of most reptiles is a simple opening in the head, but this is not present in the snakes, which are deaf to ordinary sound.



Two lungs or one. Reptiles breathe by means of lungs. Generally they have two lungs, like other land vertebrates. In the more primitive snakes, however, such as pythons, the left lung is reduced in size, while in most other species of snakes it is absent, and only the right lung is developed. This is probably an adaptation to their slender form. The lungs of reptiles are less highly developed, and less efficient, than those of birds and mammals.

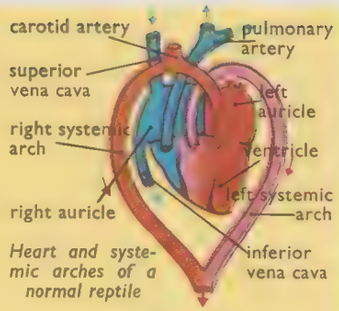


Section of the lung of a reptile

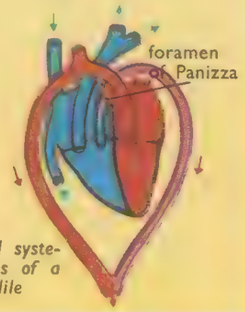
Circulation of the blood. Most reptiles have hearts divided into three chambers – two auricles and one ventricle – and have two systemic arches. This is different from mammals and birds, in which the ventricle is divided so that the heart consists of four chambers; and which have only one systemic arch (the right in birds, the left in mammals).

In the diagrams on the right, blood-vessels carrying blood charged with oxygen (arterial blood) are coloured red, those carrying blood without oxygen (venous blood) are blue. The top diagram shows venous blood coming through two veins into the right auricle, while the left auricle is filled with arterial blood from the lungs. In the ventricle the two kinds of blood become partly mixed. Three arteries leave the ventricle: the pulmonary artery carries venous blood to the lungs; the right systemic arch pure arterial blood; and the left systemic arch mixed blood. These arches join and supply blood to the system; this is not therefore pure arterial blood as it is in the circulation of birds and mammals.

In the crocodiles (lower diagram) the ventricle is divided, but as the left systemic arch still functions, the animal does not gain full advantage from this. But the left arch is narrow, and the two arches are joined by an opening, the foramen of Panizza; this limits mixing of the blood and shows an advance on the normal reptilian pattern.



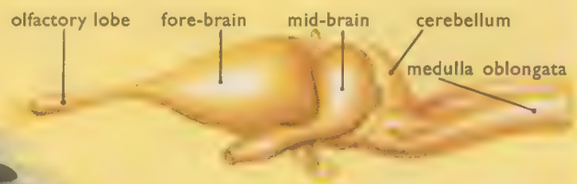
Heart and systemic arches of a normal reptile



Heart and systemic arches of a crocodile

Body temperature. The body temperature of reptiles is not kept automatically at a constant (and rather high) level like that of birds and mammals. The blood of a lizard basking in the hot sun gets quite warm, but at night, or on a cold day, it is much cooler. When reptiles are cold they become sluggish, and in temperate climates they cannot remain active in the winter, but have to hibernate. For this reason far more kinds of reptiles are found in the tropics than in temperate and cold regions.

The brain. The brains of reptiles are of the same pattern as those of fishes and amphibians, but their fore-brains are considerably larger. It is this part of the brain that in mammals, including man, becomes convoluted and forms the cerebral hemispheres (see page 431).



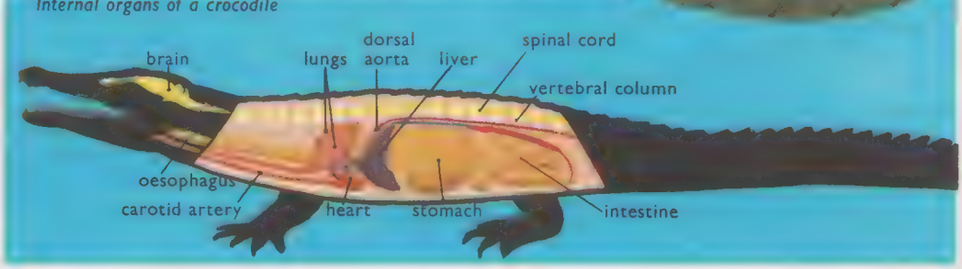
Brain of a crocodile from the left side

Oviparous or ovo-viviparous. Oviparous means 'egg-laying', and most reptiles reproduce in this way. The covering of their eggs is usually a parchment-like skin, but crocodiles and the lizards called geckos lay eggs with a hard shell.

Viviparous is the word applied to animals that bear their young alive, as mammals do. Some snakes bear living young, but these have developed in the mother's body enclosed in a membrane and nourished by a yolk, just as embryos develop in an egg. Water and oxygen are supplied to the developing young, but their blood circulation is not continuous with the mother's as in mammals. This type of reproduction is called ovo-viviparous.

A baby crocodile hatching from the egg

Internal organs of a crocodile



EDWARD III

EDWARD III had, after Queen Victoria, George III, and Henry III, the fourth longest reign in the history of the English monarchy. Spanning so much of the 14th century (1327–1377), Edward's era could not fail to be of crucial importance. It saw the decline of feudalism (see page 2407), and the growth of a 'money economy'; the Black Death with all its tremendous social consequences; the height of the great mediaeval wool trade (see page 2596); the development of Parliament (see page 344) and a national spirit; a growing feeling against the churchmen and hostility to the papacy, typified by John Wycliffe. In addition, the age had Edward himself – war-like, energetic, and amazingly strong, whose glittering court was the envy of Europe; whose Order of the Garter was coveted by every English knight; and whose armies gave the English some of their greatest victories of the Middle Ages.

An English archer

Edward came to the throne as a boy of 14, after the deposition and murder of his father. For the first three years the government was in the hands of the treacherous Roger Mortimer and Queen Isabella, Edward's mother. In October 1330 Edward (who at 17 was already the father of the Black Prince by his wife Philippa of Hainault) suddenly asserted himself. He had Mortimer seized and then executed, and from then on set himself not only to rule, but to enjoy ruling.

Edward's wars

Edward's martial temperament made him seek war, and Scotland offered ideal prospects. In 1328 Mortimer had signed the humiliating Treaty of Northampton with Robert Bruce (see page 846) recognising Scottish independence. Bruce died the following year, and was succeeded by the youthful king David Bruce. Some of the magnates opposed David, and in 1332 a rising under John Balliol was successful. But within a few months Balliol had been overthrown. Edward seized this opportunity, and crossed the border with a huge army to support Balliol. The Scots were defeated at Halidon Hill. Within a few years, however, David Bruce was able to re-establish himself on the Scottish throne.

Edward soon lost interest in Scotland, for a far greater prize was tempting him. England and France had long been enemies, and in 1337 a war broke out. This war has come to be known as the Hundred Years War. Its main cause was the rivalry over the large English possessions within the French kingdom. Moreover in 1340 Edward assumed the title of King of France, even more embittering the conflict – this title was held by every English king until George III.

The first few years of war were spent attempting to build up alliances against France. In 1340 Edward himself participated in the great naval battle of Sluys, which destroyed the French fleet. But Edward was constantly hampered by lack of money, and in the same year he returned to England. Here he found his affairs in disorder, and at once made an unreasonable attack on his chief minister, Archbishop Stratford of Canterbury. For a while he lost the confidence of his magnates, though he soon learned how to handle them better. The mutual trust which developed between the King and his greatest subjects, and the frequent consultations which took place in Parliament, resulted in the increased importance of the latter.

1346, *Crécy – the cream of the French cavalry ride to their*

Sporadic fighting with France continued until, in July 1346, Edward, together with his 16-year-old son, landed in France to begin an astonishing campaign which took them right to the gates of Paris. The French army was overwhelmed at Crécy (see page 1981), and later the town of Calais was captured – the latter was one of the most lasting achievements of the war. The following year a truce was made, and Edward returned to England where he held a magnificent series of feasts and tournaments to celebrate his victories. The arrival of the plague in 1348 did little to halt Edward's celebrations. It was while the plague was raging that Edward founded the Order of the Garter – still the most coveted British order of chivalry (see page 2166).

The French king captured

A few years later fighting began again, and in 1355 the English began another major onslaught. The result was the sensational Battle of Poitiers in which the French were routed by the Black Prince, and King John taken prisoner. John was brought back to England and lodged magnificently in the Savoy Palace. He agreed to peace terms which were so favourable to England that the French nobles rejected them. In 1360 the more moderate Peace of Brétigny was signed, in which Edward abandoned his claim to the French crown but received all of Aquitaine. The peace held

deaths against the firm line of English archers and pikemen

until 1369, when the new French king, Charles V, renounced the treaty. But this time there were to be no triumphs for British arms. The Black Prince's health broke down, and Edward was no longer the great soldier he had been. Edward's last expedition to France, in 1372, was a failure, and in 1375 a truce was agreed upon, which lasted until the end of the reign.

Philip VI of France (1328–1350)

Edward III, France's great enemy (1327–1377)

Effects of the Black Death

The central event of Edward's reign was, of course, the Black Death – the worst natural calamity ever to occur in the western world. In England it carried off about one-third of the entire population. Its greatest long-term effect was to accelerate the decline of the old feudal system. With so many killed off there was a shortage of labour, and, instead of being 'tied to the soil', peasants found they could sell their labour for money wages. The *Statute of Labourers* (1351) tried to abolish this new freedom, but the clock could not be put back.

Anti-clericalism and politics

The 14th century saw a rapid decline in the prestige of the Papacy. The Popes' residence at Avignon (1309–1378) made them little more than puppets of England's great enemy, France. In addition there was a growing dislike of priests and monks in general. Hostility to the clergy was evident in Edward's attack on Stratford in 1340, and in 1351 and 1353 were passed two important anti-papal statutes. The first, the *Statute of Provisors*, sought to abolish the Pope's control of clerical appointments. The second, that of *Praemunire*, tried to prevent certain legal cases going before the papal court.

In his later years Edward plundered Church revenues increasingly. In 1371 he drove Bishop Wykeham of Winchester from office, together with many other clerical members of the government. Edward himself was now old and feeble; control passed to his unpopular son, John of Gaunt, who was a close friend of John Wycliffe, the great anti-clerical preacher and 'Morning Star of the Reformation'. An opposition party grew up, headed by the House of Commons and the Black Prince. It culminated in the Good Parliament in 1376 – one of the crucial dates in Parliament's history. Some of Gaunt's supporters were impeached and executed, but the sudden death of the Black Prince enabled Gaunt's men to rally. In 1377 another Parliament undid most of the work of its predecessor. Later the same year, on 21st June, King Edward himself died. He was succeeded by the young Richard II, with whose reign the long Plantagenet line was to end.

YOU SHOULD NOW KNOW

1. *Which earl was executed in 1330?*
2. *When did the Hundred Years War begin?*
3. *When was the Black Death?*
4. *Who was the Black Prince?*
5. *What was the Good Parliament?*

MARY, QUEEN OF SCOTS

FEW women have had a more exciting and romantic history than Mary, Queen of Scots. This proud, beautiful girl was at one time Queen of Scotland and France, and, in Catholic eyes, Queen of England as well. Her captivating personality was a mixture of charm, passion, and rashness – a rashness which was to result in her disgrace, deposition, flight, and ultimately in her death on the scaffold.

Mary was born in December 1542 at Linlithgow, the daughter of James V of Scotland and Mary of Lorraine. She was only a few days old when her father died and she became Queen of Scotland. As with every 16th-century queen, her advisers were preoccupied with finding her a suitable husband. A betrothal to the infant Edward, son of Henry VIII, came to nothing; but in 1548 she was betrothed to the Dauphin (heir to the French throne) Francis. So, when only five years old, she set sail for France. She landed on 15th August, and, after a happy ten years spent under the protection of the great Guise family, she married in April 1558. The following year Elizabeth became Queen of England, but Catholics, who considered her illegitimate, recognised Mary as Queen instead. Civil war broke out in Scotland between the Catholics (led by the Regent, Mary of Lorraine) and the Protestants. The Protestants won, and on 25th August 1560 the Catholic faith was suppressed throughout Scotland.

The troubles begin

Mary had by now become Queen of France, but she was only to remain so for a few months, for her husband died on 5th December 1560. The following August Mary arrived to take command of the barren, Protestant, kingdom which she hardly knew and with whose people she had little in common. Yet her charm, courage, and tact soon won her adherents all over Scotland, with the exception of the redoubtable John Knox (see page 2140), who spoke of her 'proud mind, crafty wit, and indurate heart against God and His Truth'. In fact in those early years in Scotland Mary showed qualities of statesmanship which are not usually associated with her name. Unlike Mary Tudor (see page 2624), she did not try to undo the Reformation, and kept her demands (daily Mass celebrated in her chapel) to a minimum.

All might have been well had it not been for her passionate nature. In defiance of Queen Elizabeth she secretly married her cousin, Henry, Lord Darnley. The Protestants resented this marriage, which reinforced Mary's claim to the English throne by adding that of Darnley himself, whose mother was (by descent from Margaret Tudor) heir to the English throne after Mary. The marriage, celebrated on 29th July 1565, resulted in a civil war in which Mary's supporters were successful.

Mary soon tired of her new husband and refused him the title of King. He in turn was jealous of her friendship with her secretary David Rizzio. On 9th March Darnley organised an attack on Holyrood Palace; Rizzio was seized and slain before the horrified eyes of the Queen. Despite this atrocity, Mary and her husband were reconciled, and a son, James, was born on 19th June 1566. Yet already Mary had become infatuated with the powerful James Hepburn, Earl of Bothwell. On 22nd January 1567 Mary had her husband, who was ill, moved to Kirk-of-Field, an isolated house in Glasgow. She visited him on 9th February, and that night a huge gunpowder explosion destroyed Darnley's house. In the morning his body was found nearby, where he had been strangled in the act of escaping.

There is little doubt that Bothwell carried out the murder with Mary's connivance. He was brought for trial, but acquitted by the Privy Council (in which he himself sat) because no one dared testify against him. Then, with appalling effrontery, Mary created him Duke of Orkney and Shetland on 12th May; three days later their marriage was solemnised.

The sober Scots had had enough. They rose against her, and on 23rd June she was forced to abdicate. Imprisoned at Lochleven Castle, she escaped, only to be defeated by the Regent, the Earl of Moray, and fled to England to place herself under Elizabeth's protection.

Mary's treachery

Elizabeth confined her securely but comfortably. Mary, however, began intriguing almost immediately, and agreed to a plan to divorce Bothwell and marry the Duke of Norfolk, a leading Catholic peer. This landed Norfolk in the Tower. Then a plot for a Spanish invasion on her behalf was disclosed, and in May 1572 Parliament demanded her execution. Elizabeth refused, but Norfolk was sent to the block.

Years of tortuous negotiation followed, but neither the Scots, nor Elizabeth, nor even Mary's son James VI, were anxious for her restoration. Meanwhile, further plots were uncovered, and some of Mary's treasonous correspondence with Spain was intercepted by Elizabeth's efficient Privy Councillor, Francis Walsingham.

Finally, in 1585, Mary was implicated in Anthony Babington's plot to murder Elizabeth. She was arrested, and after a prolonged investigation and trial she was executed on 8th February 1587.

Mary was magnificent in death. Her bearing throughout her trial had been calm, regal, and majestic. In the hall of execution she listened to her sentence composedly, almost cheerfully, though she resolutely denied all the charges made against her. As the Dean prayed aloud for her, his English was drowned by her own prayers in Latin. She prayed for her son, for Elizabeth, for all her enemies, and for the Catholic faith. Then she placed her head on the block, and a bizarre, yet strangely heroic, life was brought to an end.

Mary, Queen of Scots, hot-headed in life, magnificent in death, is led to her execution

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To understand the Russian system of government and administration (see fig 1 on next page) you must realise two important things: first, that the Soviet Union is a union of 15 republics, all of which could, in theory, secede from the union; and secondly, that all governmental authority is vested in elected assemblies known as *Soviets of Working Peoples' Deputies*.

The 15 republics

The actual structure of government varies from republic to republic, but these are the basic administrative divisions: most republics are divided into *territories* or *regions*; these are divided into *districts*, *towns*, and *urban settlements*; the districts are divided into *rural districts*, usually containing a number of villages. There are, in the Soviet Union, some areas which are granted an exceptional degree of independence; these are: 20 *autonomous republics*, 8 *autonomous regions*, and 10 *national areas*.

The soviets

The authority in governing these various units is vested in soviets. These are elected assemblies which can be responsible for affairs of state, or the affairs of a village. Each soviet has its own area of competence. For instance, the village soviet is not able to deal with certain affairs which are the responsibility of the district soviet, and the district soviet is not able to deal with affairs which are the responsibility of the soviet of the region, and so on. The Supreme Soviet is responsible for the most important affairs.

Election of deputies to the soviets is by direct vote of citizens. But the candidates for office are approved by the Communist Party or associated organisations.

The Supreme Soviet

The *Supreme Soviet* is the highest organ of government of the Soviet Union, and can make laws for the whole country. The Supreme Soviet has two equal chambers, and a law is considered adopted if passed by both chambers. Equally, both the chambers can initiate legislation. These two chambers are: the *Soviet of the Union*, which represents the interests common to all the citizens of the USSR irrespective of nationality; and the *Soviet of Nationalities*, which represents the interests specific to different peoples and nations inhabiting the USSR. Elections to the former are one deputy for every 300,000 electors; and to the latter by a fixed number of deputies from union republics, autonomous republics, autonomous regions, and national areas (see fig 2).

The Supreme Soviet appoints the *Presidium of the Supreme Soviet* and the *Council of Ministers*; it also elects the *Supreme Court* and the *Procurator General*; the latter exercises supreme supervisory power to ensure the strict observation of the law (see fig 3).

The Presidium of the Supreme Soviet and the Council of Ministers

The Supreme Soviet meets about two or three times in the year, and the sittings last about a week. While it is not in session, it delegates most of its power to the Presidium. But the main executive power is vested in the Council of Ministers, which is rather like the British cabinet, its Chairman being similar to the British Prime Minister. Just as the British cabinet is responsible to Parliament, the Council of Ministers is responsible to the Supreme Soviet, and, when this is not in session, to the Presidium. The Chairman of the Council of Ministers of the USSR in 1963 was Nikita Krushchev.

The responsibilities of the Council of Ministers are as follows: management of national economy; direction of the cultural development; maintenance of public order; protection of the interests of the State; safeguarding the rights of citizens; fixing of the annual contingent of citizens to be called up for military service; direction of the general organisation of the armed forces of the USSR; and the exercising of general guidance in the sphere of relations with foreign states.

Outside the Kremlin walls is the 'shrine' of Russian Communism – Lenin's mausoleum

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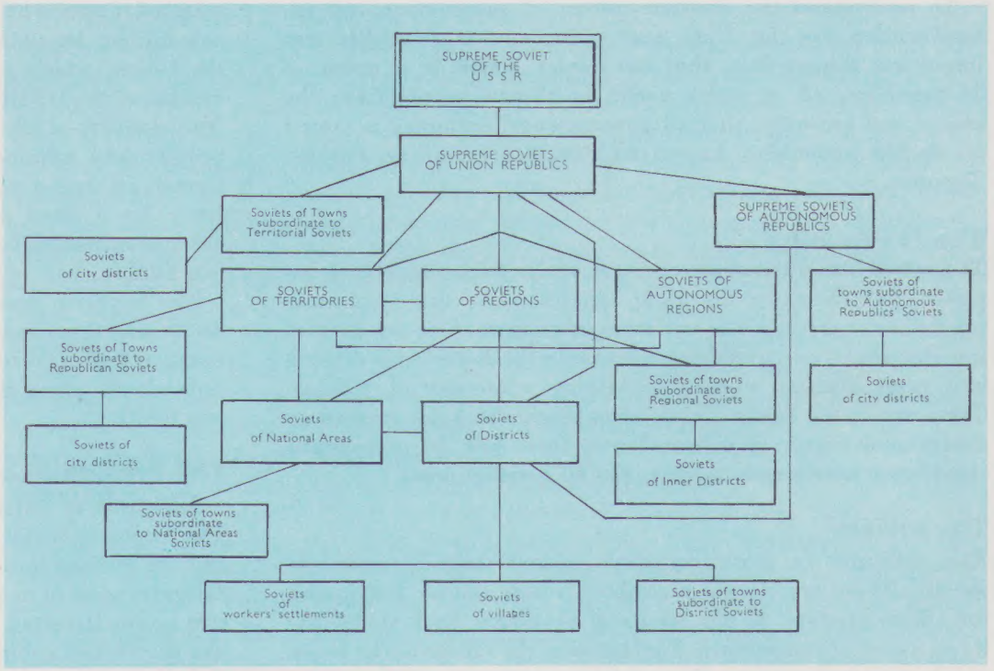
Ministers are assisted in the work of government by deputies of the Supreme Soviet, who sit on various committees dealing with important affairs. They make recommendations to, and ask questions of, the respective ministers.

Regional government

In theory all 15 union republics are independent: indeed the Ukraine and Belorussia have representatives at the United Nations. Each republic has its own ministers and Supreme Soviet, and a certain measure of independence in dealing with its own internal affairs. The trend at the moment is to give more power to these local governments.

COMMUNIST PARTY

The dominant power in the USSR is the Communist Party, which influences all political and economic life. Nikita Krushchev is the Russian leader because, as well as being the Chairman of the Council of Ministers, he is First Secretary of the Central Committee of the Soviet Communist Party. The British political parties do not have such a dominant influence on the country's administration. The Communist Party is the only legal party in the Soviet Union. All candidates for election to a soviet, all appointments to important offices, and all important changes in policy or new policies, must meet with the approval of the Party. The supreme organ of the Communist Party is, in theory, its *Congress* – the *Central Committee* carries on the work of the Congress when it is not in session, and also elects a *Presidium* to direct its work. In this presidium are found the real masters of the Soviet Union (see figure 4).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SUPREME SOVIETS OF UNION REPUBLICS
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Soviets of Districts
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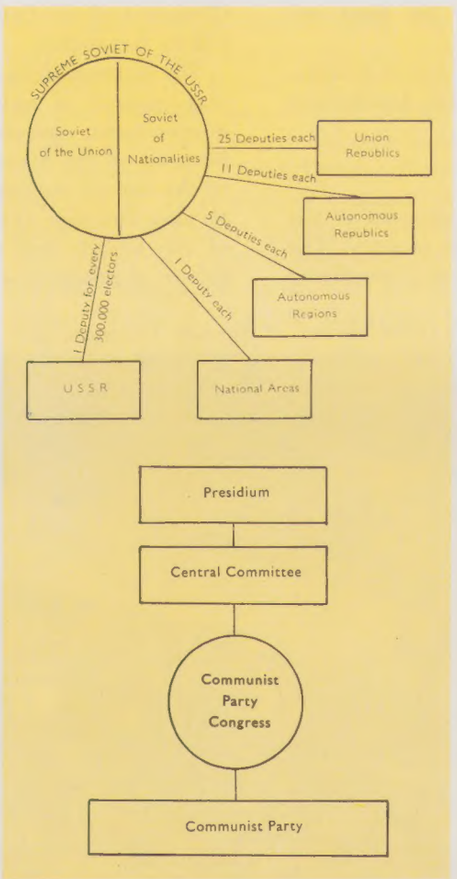
Soviets of Inner Districts
Soviets of towns subordinate to National Areas Soviets
Soviets of workers' settlements
Soviets of villages
Soviets of towns subordinate to District Soviets

The Soviets of Working Peoples' Deputies are, in theory, at the centre of Russian administrative and governmental life, dealing with affairs of state or of a village



The organisation of the Soviet Union's 10½ million strong Communist Party

The Supreme Soviet consists of two chambers: one which represents the interests of the people as a whole, and the other those of regions with a national character

The Supreme Soviet appoints the Council of Ministers and its Presidium, and elects the Procurator General and the Supreme Court